

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) An acoustic inkjet printing apparatus ~~focusing acoustic waves generated by transducers and ejecting droplets of a printing liquid from a surface thereof by means of a sound pressure of the acoustic wave~~, the acoustic inkjet printing apparatus comprising:

a printing liquid containing chamber containing ~~[[the]]~~ a printing liquid;

a piezoelectric element including a main transducer and ~~at least one~~ a sub transducer ~~located~~ provided on at least one side of the main transducer, ~~[[and]]~~ the piezoelectric element receiving a drive signal and generating an ~~[[the]]~~ acoustic wave in response to receiving the drive signal ~~by receiving a signal; [[and]]~~

an acoustic focusing member focusing the acoustic wave generated by the piezoelectric element near the surface of the printing liquid, thereby ejecting ~~[[the]]~~ droplets of the printing liquid~~[[,]]~~;

a droplet recovery member provided adjacent to the printing liquid containing chamber, such that the droplet recovery member is in contact with the surface of the printing liquid contained within the printing liquid containing chamber and facing toward the surface of the printing liquid,

the droplet recovery member having an opening, through which some of the ejected droplets pass, and

a droplet recovery surface facing toward the surface of the printing liquid, such that other ejected droplets that do not pass through the

opening hit the droplet recovery surface and are returned to the printing liquid containing chamber; and

the acoustic inkjet printing apparatus being capable of switching between a first ejection mode in which the ejected droplets are ejected in a first direction perpendicular to the surface of the printing liquid ~~a liquid surface~~ in the printing liquid containing chamber and a second ejection mode in which the ejected droplets are ejected at an angle to the first direction by applying or not applying a drive signal to the sub transducer in accordance with image printing data, while ~~[[the]]~~ a drive signal is being applied to the main transducer of the piezoelectric element.

2. (Currently Amended) The apparatus according to claim 1, wherein the sub transducer is a first sub-transducer, the apparatus further comprising a second sub transducer, wherein the second sub transducer is provided on the main transducer opposite to the first sub transducer ~~transducers are provided at both side of the main transducer.~~

3. (Currently Amended) The apparatus according to claim 1, wherein the acoustic focusing member is either a concave lens, a spherical aberration of which has been corrected, or a Fresnel lens.

4. (Canceled)

5. (Currently Amended) The apparatus according to claim [[4]] 1, wherein the droplet recovery surface is located on at least one side of the opening of the droplet recovery member.
6. (Currently Amended) The apparatus according to claim [[4]] 1, wherein the droplet recovery member opening has first and second sides and the droplet recovery surface includes first and second side surfaces, the first and second side surfaces of the droplet recovery surface being provided ~~surfaces are located on both the first and second~~ sides of the opening of the droplet recovery member, respectively.
7. (Currently Amended) The apparatus according to claim [[4]] 1, wherein the other ~~droplet recovery surface serves as a surface which the droplets hit and along which the~~ hit ejected droplets which hit the droplet recovery surface flow along the droplet recovery surface in accordance with the force of gravity so as to be recovered.
8. (Currently Amended) The apparatus according to claim [[4]] 1, further comprising a drive signal generating circuit generating the drive signal to be applied to the piezoelectric element.
9. (Currently Amended) The apparatus according to claim 8, wherein the drive signal generating circuit ~~is capable of applying or not applying~~ applies the drive signal to the sub transducer in accordance with ~~at least~~ the image printing data ~~signal~~ externally applied thereto, while the drive signal is being applied to the main transducer.

10. (Original) The apparatus according to claim 1, wherein centers of the main transducer and the acoustic focusing member are shifted from each other.

11. (Currently Amended) The apparatus according to claim ~~[[4]]~~ 1, ~~wherein further~~ comprising a partition wall ~~[[is]]~~ provided inside the droplet recovery surface, the partition wall preventing the ejected ~~droplet~~ droplets returning from the droplet recovery surface ~~to the~~ printing liquid containing chamber from hitting the ejected droplet flying out of the opening.

12. (Currently Amended) The apparatus according to claim ~~[[4]]~~ 1, wherein the acoustic focusing member is provided in a manner such that the ejected ~~to eject the~~ droplets are ejected in a horizontal direction, and the droplet recovery surface is provided ~~at least~~ below the opening.

13. (Currently Amended) The apparatus according to claim ~~[[4]]~~ 1, wherein the acoustic ~~[[wave]]~~ focusing member is provided in a manner ~~to eject the~~ such that the ejected droplets are ejected downward in a vertical direction, and the droplet recovery surface is provided so as to face upward on at least one side of the opening.

14. (Currently Amended) The apparatus according to claim ~~[[4]]~~ 1, wherein centers of the main transducer and the acoustic focusing member coincide with each other, and the sub transducer is provided at one side of the main transducer.

15. (Currently Amended) The apparatus according to claim [[4]] 1, further comprising additional sub transducers wherein ~~a plurality of the sub transducers are~~ the sub transducer, and the additional sub transducers are provided on the at least one side of the main transducer.

16. (Currently Amended) The apparatus according to claim [[4]] 1, wherein the acoustic focusing member is provided in ~~a such~~ such a manner that the acoustic wave ~~is waves~~ are emitted diagonally relative to a direction of the ejected droplets.

17. (Original) The apparatus according to claim 1, wherein the piezoelectric element generates an ultrasound wave.

18. (Currently Amended) An acoustic inkjet printing apparatus ~~focusing acoustic waves generated by transducers and ejecting droplets of a printing liquid from a surface thereof by means of a sound pressure of the acoustic wave~~, the acoustic inkjet printing apparatus including a plurality of printing liquid ejecting units arranged in a matrix form, the units in adjacent lines being shifted from each other, each unit comprising:

a printing liquid containing chamber containing ~~[[the]]~~ a printing liquid;

a piezoelectric element including a main transducer and ~~at least one~~ a transducer ~~located~~ provided on at least one side of the main transducer, and the piezoelectric element receiving a drive signal and generating the an ultrasound wave ~~[[by]]~~ in response to receiving the drive signal ~~receiving a signal; [[and]]~~

an acoustic focusing member focusing the acoustic waves generated by the piezoelectric element near the surface of the printing liquid, thereby ejecting [[the]] droplets of the printing liquid[[.]];

a droplet recovery member provided adjacent to the printing liquid containing chamber, such that the droplet recovery member is in contact with the surface of the printing liquid contained within the printing liquid containing chamber and facing toward the surface of the printing liquid,

the droplet recovery member having an opening, through which some of the ejected droplets pass, and

a droplet recovery surface facing toward the surface of the printing liquid, such that other ejected droplets that do not pass through the opening hit the droplet recovery surface and are returned to the printing liquid containing chamber; and

the acoustic inkjet printing apparatus being capable of switching between a first ejection mode in which the ejected droplets are ejected in a first direction perpendicular to the surface of the printing liquid ~~a liquid surface~~ in the printing liquid containing chamber and a second ejection mode in which the ejected droplets are ejected at an angle to the first direction by applying or not applying a drive signal to the sub transducer in accordance with image printing data, while [[the]] a drive signal is being applied to the main transducer of the piezoelectric element.

19. (Original) The apparatus according to claim 18, wherein the piezoelectric element generates an ultrasound wave.

20. (Canceled)

21. (New) A method of ejecting and recovering a printing liquid in an inkjet printing apparatus comprising:

focusing an acoustic wave near a surface of the printing liquid by an acoustic focusing member, the acoustic wave being generated by a piezoelectric element, to eject droplets of the ejected droplets of the printing liquid being ejected from the surface of the printing liquid,

the piezoelectric element including a main transducer and at least one sub transducer located on at least one side of the main transducer,

the droplets being ejected in a first direction perpendicular to the liquid surface of the printing liquid in a print liquid containing chamber or at an angle to the first direction by applying or not applying a drive signal to the sub transducer in accordance with image printing data, while a drive signal is being applied to the main transducer of the piezoelectric element; and

recovering some of the ejected droplets with a droplet recovery member, said some of the ejected droplets being ejected at an angle to the first direction,

the droplet recovery member being provided adjacent to the printing liquid containing chamber and facing toward the surface of the printing liquid,

the droplet recovery member having an opening, through which the droplets being ejected in a first direction perpendicular to the liquid surface pass, and

a droplet recovery surface facing toward the surface of the printing liquid, said some of the ejected droplets that do not pass through the opening hitting the droplet recovery surface and returning to the printing liquid containing chamber,

the droplet recovery member and the printing liquid containing chamber being arranged such that the droplet recovery surface of the droplet recovery member is in contact with the surface of the printing liquid contained within the printing liquid containing chamber.